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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/514,436	02/28/2000	Lawrence A. Ray	77522DMW	8513
1333	7590	08/12/2004	EXAMINER YE, LIN	
PATENT LEGAL STAFF EASTMAN KODAK COMPANY 343 STATE STREET ROCHESTER, NY 14650-2201			ART UNIT 2615	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/514,436

Applicant(s)

RAY ET AL.

Examiner

Lin Ye

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16-48, 53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 16-31, 53 and 54 is/are allowed.
- 6) ☒ Claim(s) 32-36 and 38-48 is/are rejected.
- 7) ☒ Claim(s) 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-13, 16-48 and 53-54 filed on 5/21/04 have been considered but are moot in view of the new ground(s) of rejection. Based on unamended claims 32-42, this rejection is made for non-final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 43 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Abdel-Mottaleb et al. U.S. Patent 6, 263,113.

Referring to claim 43, the Abdel-Mottaleb reference discloses in Figure 10, a method for determining the presence of a face from image data, said method comprising the steps of: (a) prescreening the image data with a first algorithm, the first algorithm determining a plurality of face candidates utilizing a pattern matching technique that identifies image windows likely to contain faces based on color and shape information (as shown in step 4, see col. 3, lines 50-67); and (b) operating on the face candidates with a second algorithm the second algorithm processing the face

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candidates using a maximum a posteriori classifier (e.g., the classification includes the area of the bounding box of component, the aspect ratio, the ratio of detected skin to the area, the distance between the center, see Col. 4, lines 29-55) to determine the presence of the face. (The applicant also should be noted the claim 43 only requires a method which has the two steps for determining the presence of a face form image data. It does not require these two steps in the digital camera.)

Referring to claim 46, the Abdel-Mottaleb reference discloses all subject matter as discussed with respect to same comment as with claim 43.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 32-36 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Anderson U.S. Patent 5,973,734 and McIntyre U.S. 5,687,412.

Referring to claim 32, the Fujimoto reference discloses in Figure 4 and 6-16, a digital image processing apparatus (digital camera system) for capturing an image of a scene (See Col. 3, lines 59-61), said image processing apparatus comprising: a capture section (image input section 16, see Col. 7, lines 32-37) for capturing an image and producing image data; an electronic processing section (face image

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recognizing section 11-1) for processing the image data to determine the presence of one or more faces in the scene (See Col. 4, lines 12-23); face data (e.g., the area and coordinates of the recognized face image area) means associated with the processing section for generating face data corresponding to attributes of at least one of the location (coordinate) of at least one of the faces in the image (See Col., 7, lines 52-55). However the Fujimoto reference does not explicitly show the capture section and electronic processing section can be integrated inside of a digital camera together.

The Anderson reference discloses in Figures 2 and 8, a digital camera (110) including an imaging device (114) for capturing an image of a scene and an electronic processing section (computer 118 which performs various image processing functions on the image data in Figure 2, see Col. 3, lines 61-67 and Col. 4, lines 1-9). The Anderson reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the both image capture section and electronic processing section can be integrated together as part of a hand held digital camera so that the digital camera system are more compact and portable. For that reason, it would have been obvious to see the digital image processing apparatus is a camera that including image capturing section and electronic processing section disclosed by Fujimoto.

The Fujimoto and Anderson reference does not discloses the camera system is hybrid camera for capturing an image of a scene on both an electronic medium and film medium instead just a digital camera.

The McIntyre reference discloses in Figure 3, the hybrid camera has an image capture section for capturing an image with an image sensor (25) and producing image data; means for capturing the image on the film medium (30) and image

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identification data in same time. The McIntyre reference is an evidence that one of ordinary skill in the art at the time to see more advantages for using both image sensor and film medium to capture image to provide a stereo image of the scene and the camera can accept alternate media to store image data. For that reason, it would have been obvious to see the camera system is hybrid camera can capture an image with both image sensor and film medium and writing the face data on the film medium disclosed by Fujimoto.

Referring to claim 33, the Fujimoto reference discloses a storage medium (RAM 12) for storing the image data; and recording means associated with the processing section for recording the face data (e.g., coordinates of the recognized face image area) with the image data on the storage medium (See Col. 7, lines 46-55 and Col. 6, lines 50-53).

Referring to claim 34, the Fujimoto reference discloses wherein the electronic processing section provides an indication that one or more faces have been detected (See Col. 4, lines 18-23).

Referring to claim 35, the Fujimoto reference discloses wherein a framing device (LCD display 2-1 in Figure 4) for framing the image, and wherein the electronic processing section provides an indication in the, framing device identifying the one or more faces that have been detected as shown in Figures 6 or 10.

Referring to claim 36, the Fujimoto reference discloses wherein the electronic processing section further includes a face recognition algorithm and a data base of known faces for generating facial identities (a plurality of face recognition color data for recognition of a face image), and wherein the recording means labels one or more

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images in the storage medium with the facial identities of known faces (recognition result memory 12-5, or the film medium as discussed in claim 32, see Col. 7, lines 52-55 and Col. 13, lines 5-11).

6. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Anderson U.S. Patent 5,973,734, McIntyre U.S. 5,687,412 and Nonaka U.S. Patent 5,986,764.

Referring to claims 38, the Fujimoto, Anderson and McIntyre references disclose all subject matter as discussed in respected claim 32, except the reference does not explicitly teach the exposure control section responsive to the presence of one or more faces for optimally exposing the image.

The Nonaka reference discloses in Figures 3A-B and 8, a digital camera system including face detection (See Col. 6, lines 64-67), the exposure control for setting the exposure for the face region so that the face of the subject will not blacken even in back light situations (See Col. 8, lines 17-19). The Nonaka reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the digital camera system can set the exposure for the face region which camera focus on it, not for the background so that camera can have more flexible option to optimally expose the interested foreground object. For that reason, it would have been obvious to see the capture section further includes an exposure and focus control section responsive to the presence of one or more faces for optimally exposing the image for are least one of the faces in the scene disclosed by Fujimoto.

Referring to claim 39, the Nonaka discloses a flash unit (26, see Col. 5, lines 36-45), and wherein the electronic processing section controls activation of the flash unit

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in order to optimize exposure for at least one of the faces in the scene (Col. 8, lines 16-18).

7. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Anderson U.S. Patent 5,973,734, McIntyre U.S. 5,687,412 and Ferrada U.S. Patent 5,873,007.

Referring to claim 40, the Fujimoto, Anderson and McIntyre references disclose all subject matter as discussed in respected claims 32 and 35, but the reference does not explicitly show a composition algorithm associated with the processing section for generating composition suggestions for a user of the camera.

The Ferrada reference discloses in Figure 2, a picture composition guidance system for camera includes horizontal lines (30 and 32) and horizon guide 22 follows the “rule of thirds” is based on the theory that the human eye naturally looks to a point about two-thirds up a page (See Col. 2, lines 60-66); and a display device (LCD) for displaying the composition suggestion to the user (See Col. 37-47). The Ferrada reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the camera using the composition principles such as location of the main subject in relation to a “rule of thirds” and with respect to a common line (upper or lower horizontal line) so that aids user to place the main subject in the appropriate areas of the picture and produces a compositionally pleasing image. For that reason, it would have been obvious to see the camera system including the guide for picture compositions associated with the location of the faces (main subject) and generating composition suggestions (composition guidance) for a user of the camera disclosed by Fujimoto.

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Referring to claim 41, the Ferrada reference discloses wherein composition suggestions include indication that following the law of thirds will lead to a more pleasing composition (See Col. 2, lines 60-67).

8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Anderson U.S. Patent 5,973,734, McIntyre U.S. 5,687,412, Wang et al. U.S. Patent 6,278,491 and Nakamura et al. Japan Publication JP403144427 A.

Referring to claim 42, the Fujimoto, Anderson and McIntyre references disclose all subject matter as discussed in respected claims 32, except the reference does not explicitly teach a red eye detection algorithm for generating red eye signals indicating the presence of red eye in one or more of the faces.

The Wang reference discloses in Figures 2-6, automatic red-eye detection and reduction system includes a red-eye detector (22) that detects if an image contains a red eye in one or more of the faces. The Wang reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the digital camera system having a automatic red eye detection so that to avoid destroys the natural appearance of the eyes in the image. For that reason, it would have been obvious to see the digital camera including a red eye detection algorithm associated with the electronic processing section (11-1) for generating red eye signals indicating the presence of red eye in one or more of the faces disclosed by Fujimoto.

However, the Wang reference does not explicitly show displaying a red eye warning to a user of the digital camera. The Nakamura reference discloses a warning for the red-eye phenomenon is given by a display means (102, See CONSTITUTION,

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lines 11-12). The Nakamura reference is an evidence that one of ordinary skill in the art at the time to see more advantages for displaying a red eye warning to a user so that the user can give feedback, automatically reduction red-eye or take full manual control through some input device. For that reason, it would have been obvious to see the digital camera including a display device responsive to the red eye signals for displaying a red eye warning to a user disclosed by Fujimoto.

9. Claims 44-45 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abdel-Mottaleb et al. U.S. Patent 6, 263,113 in view of **Wu** et al. "Face Detection from Color Images Using a Fuzzy Pattern Matching Method", IEE Trans, Pattern Analysis and Machine Intelligence and **Schneiderman** et al. "Probabilistic Modeling of Local Appearance and Spatial Relationships for Object Recognition" Proc. CVPR 1998, 45-51.

Referring to claims 44-45, the Abdel-Mottaleb reference discloses all subject matter as discussed in respected claim 43, except that the reference does not explicitly states the first algorithm is Wu algorithm, the second algorithm is Schneiderman algorithm, and the first algorithm operates more rapidly than the second algorithm.

The Wu reference discloses an algorithm for determining a plurality of face candidates utilizing a pattern matching technique that identifies image windows likely to contain faces based on color and shape information (e.g., this algorithm is indicated in Abdel-Mottaleb reference, see Col. 3, lines 65-67). The Schneiderman algorithms try to eliminate false Positives by a probabilistic (e.g., this algorithm is same as the Abdel-Mottaleb reference disclosed in the second steps). The Wu reference clearly

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states the first algorithm using fuzzy theory to detection face candidates is very quickly, efficiently and requires very small amounts of both memory and trained state (See Applicant's specification, page 16, lines 24-32). For this reason, it would have been obvious to see the first algorithm is Wu algorithm, the second algorithm is Schneiderman algorithm, and the first algorithm operates more rapidly than the second algorithm disclosed by Fujimoto

Referring to claims 47-48, the Abdel-Mottaleb, Wu and Schneiderman reference discloses all subject matter as discussed with respected to same comment as with claims 44-45.

Allowable Subject Matter

10. Claims 1-13, 16-31 and 53-54 are allowed.
11. Claims 37 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. The following is an examiner's statement of reasons for allowance:

Referring to claims 1, 16, 17, 18 and 22, the prior art does not teach or fairly suggest a digital camera comprising an electron processing section for processing the image data to determine the presence of one or more faces in the image; and wherein the electronic processing section utilizes a face detection algorithm having a first component and a second component; the first component comprising a pre-screening pattern recognizer that searches for image windows likely to contain faces, the first component having a first rate of false positives and determining a plurality of face

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candidates; the second component comprising a posterior probability function classifier, the second component having a second rate of false positives lower than the first rate of false positives, and processing the plurality of face candidates to determine the presence of the one or more faces in the images.

Referring to claims 11 and 27, the prior art does not teach or fairly suggest a composition algorithm associated with the processing section for processing the face data and generating composition suggestions for a user of the digital camera in response to the processed face data.

Referring to claim 13 and 37, the prior art does not teach or fairly suggest a digital comprising an orientation algorithm associated with the processing section for generating orientation data indicating orientation of the image based on the orientation of at least one of the faces in the images.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Silverbrook U.S. 6,597,817 discloses a digital camera can be positioned in the correct orientation. Further, the orientation of the camera can be utilized in

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any image specific algorithmic techniques applied to the image such as face detection.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

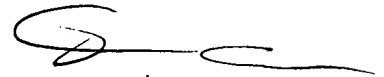
Washington, DC. 20231

Or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lin Ye
July 13, 2004